TECHNISCHE UNIVERSITÄT
ILMENAU

FAKULTÄT FÜR INFORMATIK UND AUTOMATISIERUNG

FAKULTÄTSKOLLOQUIUM

Am Donnerstag, dem 16. Juli 2015, spricht um 15:00 Uhr im Raum BI 1130

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zum Thema:

„The trajectory of MEG: Innovation, Maturation, Revolution“

Zusammenfassung:

Real-time MEG measurements became possible in the beginning of 1970s with the invention and development of practical SQUID sensors. The first recordings made by David Cohen at MIT showed that high-quality recording of the magnetic counterpart of the visual alpha rhythm was possible. During the first decade of MEG pioneering groups recorded many sensory signals and tediously mapped their spatial distributions with single-site devices. At the same time, the theoretical foundations of MEG were established and at the end of the decade the first equivalent current dipole (ECD) fitting software was created and marked the beginning of inverse modeling of MEG signals. By the beginning of 1980s it had become clear that for practical neuroscience and clinical studies a multi-channel MEG system ultimately covering the entire scalp would be a necessity. With Olli Lounasmaa and Riitta Hari as the torchbearers, a multidisciplinary research group at the Low Temperature Laboratory (LTL) of Helsinki University of Technology was in the forefront of the development of MEG technology and its applications and produced the first whole-head MEG system with more than 100 channels in 1992. By the end of the century Neuromag Ltd., a spin-off company of LTL, had supplied many such instruments to researchers and clinicians worldwide and developed the present-generation 306-channel hardware. With vibrant interaction between neuroscientists, clinicians, physicists, mathematicians, and engineers, the neuroscience and clinical applications and analysis methods were developed to establish MEG as an important method to study the healthy and diseased brains. With the advent of low-noise room-temperature magnetic field sensors and novel analysis approaches we are now at the verge of a revolution which will critically improve the sensitivity and spatial resolution of MEG and will advance its use to new fields like studies of early brain development and investigations of brain function in naturalistic situations and during interpersonal interactions.

Alle Interessenten sind herzlich eingeladen.

Die Hochschullehrer der Fakultät Ilmenau, 26.05.2015